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the winged petiole of *Liriodendron alatum* Newb. Also a representation of a large sized stipule from a young shoot, in order to show its nervation.

On plate 270 another abnormal leaf is shown, with imperfectly formed basal lobes, the nervation of which, especially that of the one on the left-hand side, is so strikingly similar to that of the stipule as to attract attention at once. On this plate are also figures of young leaves showing normal position and arrangement of the stipules.

The figures and descriptions are submitted without further comment, largely in the hope that it may induce observers to collect and study abnormal specimens, which often give us a starting point for some important morphological investigation.

Description of Plates.

PLATE 269

Fig. 1. Abnormal leaf of *Liriodendron Tulipifera* L., showing winged appendages to the petiole, from Passaic, N. J.

Fig. 2. *Liriophyllum populoides* Lesq. (Bull. Torrey Bot. Club, *plate 221*, in part.)

Fig. 3. Winged petiole of *Liriodendron alatum* Newb. (Bull. Torrey Bot. Club, *plate 220*, in part.)

Fig. 4. Large stipule of *Liriodendron Tulipifera* L., showing nervation, from Passaic, N. J.

PLATE 270.

Fig. 1. Abnormal leaf of *Liriodendron Tulipfera* L., showing imperfect basal lobes, from Passaic, N. J.

Figs. 2, 3. Young leaves of *Liriodendron Tulipifera* L., showing normal arrangement and position of stipules, from Passaic, N. J.

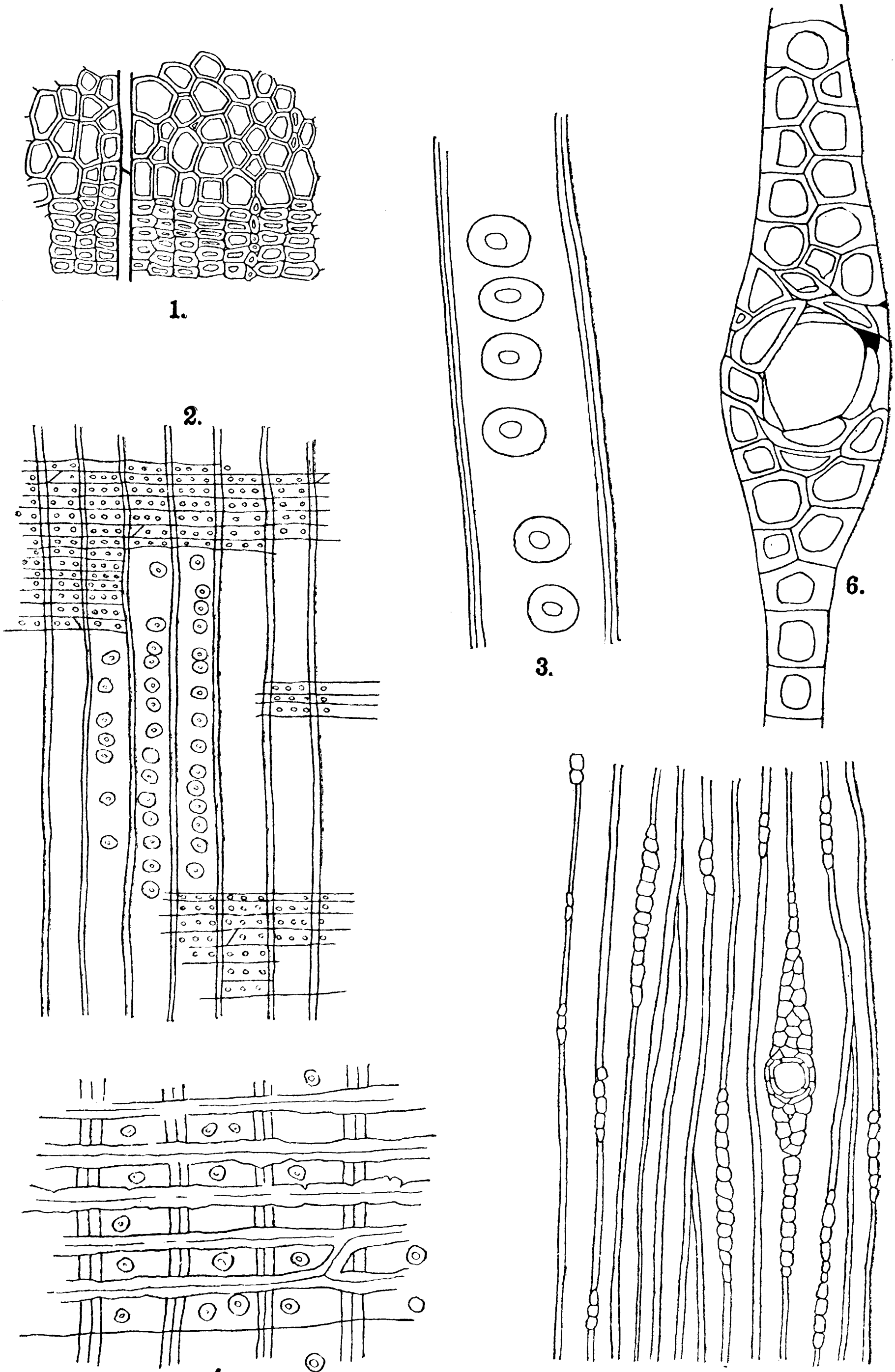
Description of a supposed new Species of Fossil Wood from Montana.

BY F. H. KNOWLTON.

(PLATE 271.)

For some time the United States Geological Survey has had in preparation a Study Series of Rocks for general educational purposes, which is to contain a series of typical rocks of this country, and in 1891 I was requested to collect for this a set of 250 specimens of silicified wood. This Study Series is to be ac-

BULLETIN OF THE TORREY BOTANICAL CLUB.—PLATE 271.



PITOXYLON PEALEI KNOWLTON.

companied by a descriptive pamphlet in which the characters, especially the microscopic ones, will be fully set forth. The fossil wood illustrates well the replacement of organic structure by silica, and in preparing the figures and descriptions for the Study Series it was found that it represented an apparently undescribed species of tree, and it has been thought desirable to publish a proper diagnosis in advance of the distribution of the specimens.

This silicified wood was collected in September, 1891, in the Upper Galletin Basin, Montana, just outside of the Yellowstone National Park. The trunk which afforded the specimens was an upright one, about eight feet in height and four feet in diameter, and, as subsequent study has shown, was admirably preserved. As the drawings show, its structure can be made out with almost as much satisfaction as though still living.

The matrix in which the trunk was standing is the characteristic volcanic deposit of the region. It appears to be very similar to, if not indeed identical with, that of the well known Fossil Forest on the Lamar River in the Yellowstone National Park. Its geological age is therefore regarded as probably Miocene.

PITYOXYLON PEALEI n. sp.

Annual ring very pronounced, 2–10 mm. broad; cells of summer wood large, thin-walled; cells of fall wood thick, much compressed; cells of summer wood with a single series of large scattered punctations; medullary rays in a single series of two to about twenty long cells, marked radially with one to three small bordered pits in the width of each wood cell; resin tubes rather numerous, of large size.

Cross Section.—This section (Fig. 1) shows the late fall and early spring wood. The contrast in the size and thickness of the walls makes a very clearly demarked ring. This ring of growth was very broad, being in some cases fully 10 mm. The medullary rays show in this section also as long, slender cells.

Radial Section.—The fine state of preservation is well shown in this section (Figs. 2–4). The cells of the spring and summer wood are very broad and marked with a single series of large scattered bordered pits. The medullary rays are also prominent in this section. They are composed of very long cells, each of which is marked with usually two or three small oblong or nearly circular bordered pits the width of each wood cell.

Tangential Section.—This section (Figs. 5, 6) shows the medullary rays to be arranged in a single series of from two to occasionally twenty superimposed cells. The resin tubes, occurring in the midst of a medullary ray (Fig. 6, enlarged 300) are quite numerous. They are of the usual character.

As far as could be made out, there are no pits or markings on the tangential walls of the wood cells.

I take pleasure in naming this supposed new species of fossil pine in honor of Dr. A. C. Peale, whose party I accompanied when it was obtained, and who has done so much, in connection with the Hayden and later geological surveys, to elucidate the geology of our Western States.

U. S. GEOLOGICAL SURVEY.

Botanical Notes.

Reseda lutea moving Inland.—In passing through a meadow to-day, a mile or so out of the city upon high ground, my eye was attracted by several greenish lemon colored sprays of a mignonette. By turning to Volume I., Part 1, of the Synoptical Flora, the find is seen to agree with *Reseda lutea* L., which is "sparingly naturalized from Europe" and localized as "Nantucket, Mass. and in ballast ground." The meadow where the specimens were found to-day is neither, and it becomes a new and interesting locality for a rare plant collected but twice before in New Jersey, so far as can be determined, and then on ballast. It is not in Gray's Field Book or Wood's Florist. BYRON D. HALSTED.

RUTGERS COLLEGE, May 25, 1896.

ASCLEPIAS ARENICOLA n. n. *Asclepias aceratoides* Nash. Bull. Torr. Club, 22: 154. 1895. Not M. A. Curtis, Am. Journ. Sci. (II.) 7: 407. 1849.

The name which I gave to this new and interesting plant, collected in 1894, had, unknown to me, been previously applied by Curtis to an entirely different member of the genus. It becomes necessary, therefore, to rename the Florida form, and the above is suggested, being descriptive of its habitat. It occurs only in the hottest and driest sand, and is confined to and is the only member